

## ABSTRACT

A device for conversion or amplification of the frequency of optical radiation, both continuous wave and pulsed, with a cheap and compact structure. The device includes a multilayer structure including a metal layer and a dielectric layer, and a transparent dielectric material disposed on the top layer of the multilayer structure. An incident beam is coupled by a coupling device, utilizing a specific surface plasmon-polariton mode, and thereby output beams reflected from a sample are modulated or amplified.